

Amendments to Claims:

This listing of claims will replace all prior versions and listings of the claims in the application:

Listing of Claims:

1. (currently amended) A method of paging in mobile communication systems, the method comprising the steps of:

a mobile terminal transmitting a location registration message to a mobile communication system, the location registration message includes information to determine whether or not a heterogeneous mobile communication system registers location information of the mobile terminal, wherein the mobile communication system comprises a circuit-switched network;

the mobile communication system transmitting location information to the heterogeneous mobile communication system, wherein the heterogeneous mobile communications system comprises a packet-switched network;

the heterogeneous mobile communication system requesting the mobile communication system to page the mobile terminal according to the received information; and

the mobile communication system paging the mobile terminal.

2. (original) The method as claimed in claim 1, further comprising a step of the heterogeneous mobile communication system setting up a packet data call with the mobile terminal and the heterogeneous mobile communication system providing the mobile terminal with packet data service.

3. (canceled)

4. (previously presented) The method as claimed in claim 1, wherein the location information further includes a first identifier.

5. (previously presented) The method as claimed in claim 4, further comprising a step of the heterogeneous mobile communication system registering the first identifier and the location information.

6. (original) The method as claimed in claim 5, wherein the heterogeneous mobile communication system changes the first identifier to a second identifier which is randomly generated to identify the mobile terminal.

7. (canceled)

8. (previously presented) A method of cross-paging from mobile communication systems to a mobile terminal, the method comprising the steps of:

determining whether the mobile terminal has been location-registered in the mobile communication system or in the heterogeneous mobile communication system with reference to pre-registered location information of the mobile terminal when paging request of the mobile terminal occurs in the heterogeneous mobile communication system, wherein the mobile communication system comprises a circuit-switched network and the heterogeneous mobile communications system comprises a packet-switched network;

transmitting a cross-paging message from the heterogeneous mobile communication system to the mobile communication system if the mobile terminal has been location-registered in the mobile communication system; and

transmitting a paging message to the mobile terminal in response to the cross-paging message in the mobile communication system.

9. (original) The method as claimed in claim 8, wherein the heterogeneous mobile communication system determines that the mobile terminal has been location-registered in the mobile communication system if a pre-registered identifier is a first identifier for identification in the mobile communication system, and that the mobile terminal has been location-registered in the mobile communication system if a pre-registered identifier is a second identifier for identification in the heterogeneous mobile communication system.

10. (original) The method as claimed in claim 8, wherein the cross-paging message includes information for requesting that a data call is set up with the heterogeneous mobile communication system.

11. (canceled)

12. (currently amended) The apparatus of cross-paging in mobile communication systems, the apparatus comprising:

a mobile terminal for generating location registration message and transmitting the location registration message to a mobile communication system, the location registration message includes information to determine whether or not a heterogeneous mobile communication system registers location information of the mobile terminal, wherein the mobile communication system comprises a circuit-switched network;

a mobile communication system for transmitting location information of the mobile terminal to the a heterogeneous mobile communication system, wherein the heterogeneous mobile communications system comprises a packet-switched network; and

a heterogeneous mobile communication system for requesting the mobile communication system to page the mobile terminal according to the received information.

13. (previously presented) The apparatus of claim 12, wherein the location information further includes a first identifier.

14. (canceled)

15. (canceled)

16. (original) The apparatus of claim 12, wherein the mobile communication system pages to the mobile terminal.

17. (previously presented) The apparatus of claim 13, wherein the heterogeneous mobile communication system sets up a packet data call with the mobile terminal, provides the mobile terminal with packet data service and registers the first identifier and the location information.

18. (original) The apparatus of claim 13, wherein the heterogeneous mobile communication system changes the first identifier to a second identifier which is randomly generated to identify the mobile terminal.